



SAFETY HEALTH AND
ENVIRONMENTAL AFFAIRS

JUN 24 1991

MATERIAL SAFETY DATA SHEET

PRODUCT

S0721 SOLN BATCH C-3P

Emergency Telephone Number

Medical (708) 920-1510 (24 hours)

SECTION 1 PRODUCT IDENTIFICATION

TRADE NAME: S0721 SOLN BATCH C-3P

DESCRIPTION: C-3P, An aqueous solution of phenylarsine oxide and dimethylformamide

NFPA 704M/HMIS RATING: 2/2 HEALTH 0/0 FLAMMABILITY 0/0 REACTIVITY 0 OTHER
0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

SECTION 2 HAZARDOUS INGREDIENTS

Our hazard evaluation has identified the following chemical ingredient(s) as hazardous under OSHA's Hazard Communication Rule, 29 CFR 1910.1200. Consult Section 14 for the nature of the hazard(s).

INGREDIENT(S)	CAS #	APPROX. %
Dimethylformamide	68-12-2	20-40
Phenylarsine oxide	637-03-6	1-10

SECTION 3 PRECAUTIONARY LABEL INFORMATION

Causes eye and skin irritation. May be harmful if swallowed or absorbed through skin.

Empty containers may contain residual product. Do not reuse container unless properly reconditioned.

SECTION 4 FIRST AID INFORMATION

EYES: Immediately flush for at least 15 minutes while holding eyelids open. Call a physician at once.

SKIN: Immediately flush with water for at least 15 minutes. For a large splash, flood body under a shower. Call a physician at once.

INGESTION: Do not induce vomiting. Give water. Call a physician at once.

INHALATION: Remove to fresh air. Treat symptoms. Call a physician.

NOTE TO PHYSICIAN: Based on the individual reactions of the patient, the physician's judgment should be used to control symptoms and clinical condition.

CAUTION: If unconscious, having trouble breathing or in convulsions, do not induce vomiting or give water.



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SECTION 5 HEALTH EFFECTS INFORMATION

PRIMARY ROUTE(S) OF EXPOSURE: Eye, Skin, Inhalation

EYE CONTACT: Can cause moderate irritation.
SKIN CONTACT: Can cause moderate irritation. Can be harmful if absorbed.
INGESTION: Can cause liver, kidney damage. Can be harmful.
INHALATION: Can cause severe respiratory irritation.

SYMPTOMS OF EXPOSURE:

ACUTE: Dimethylformamide exposure may cause nausea, headaches, weakness, abdominal discomfort, and possible abnormal liver function. Overexposure followed by alcoholic intake can produce reddening of the face, neck and hands. Toxic effects based on animal studies from short exposure include liver, kidney, bone marrow and cardiovascular effects.

AGGRAVATION OF EXISTING CONDITIONS: Individuals with pre-existing liver disease may suffer increased damage from dimethylformamide exposure.

SECTION 6 TOXICOLOGY INFORMATION

ACUTE TOXICITY STUDIES: Acute toxicity studies have not been conducted on this product, but toxicity studies of the ingredient(s) in Section 2 have been reviewed. The results are shown below.

ACUTE ORAL TOXICITY (ALBINO RATS):

Dimethylformamide LD50 = 2,800 mg/kg

COMMENTS: Signs of toxicity to the animals exposed to a lethal dose included weight loss, restlessness, and irritability. Pathological examination revealed necrosis and congestion of the liver, congestion and edema of the lungs, swelling of the kidneys and depressed bone marrow activity. No changes were seen below 1000 mg/kg. At 1500 mg/kg thickening of the lung walls was noted.

ACUTE DERMAL TOXICITY (ALBINO RABBITS):

Dimethylformamide LD50 = 4,720 mg/kg

ACUTE INHALATION TOXICITY (ALBINO RATS):

Dimethylformamide LD50 = 5,000 ppm (6-hour exposure)

PRIMARY EYE IRRITATION TEST (ALBINO RABBITS):

EYE IRRITATION INDEX DRAIZE RATING: Dimethylformamide

COMMENTS: Rabbit eyes showed moderate corneal injury, moderate conjunctivitis and no iridial effects. Flushed eyes did not appear to decrease the injury.



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SECTION 6 TOXICOLOGY INFORMATION

(CONTINUED)

SKIN SENSITIZATION: There are no human reports of sensitization from dimethylformamide.

OTHER TOXICITY RESULTS: Animal studies where dimethylformamide was applied to the skin of pregnant rats caused fetal deaths. 90-day subchronic feeding studies in the diet of rats showed no deaths nor clinical signs of toxicity from dimethylformamide. Dimethylformamide was tested in Salmonella typhimurium strains TA 1535, TA 1537, TA 1538, TA 98 and TA 100 with and without liver microsomes resulted in negative results.

CHRONIC TOXICITY RESULTS: In a 750 day study with rats administered 75 or 150 mg/kg of dimethylformamide in the drinking water no toxic signs or evidence of tumors were noted.

SECTION 7 PHYSICAL AND CHEMICAL PROPERTIES

COLOR: Colorless FORM: Liquid
SOLUBILITY IN WATER: Completely
pH (NEAT) = Slightly alkaline
FLASH POINT: Greater than 200 Degrees F (TCC) ASTM D-56

NOTE: These physical properties are typical values for this product.

SECTION 8 FIRE AND EXPLOSION INFORMATION

FLASH POINT: Greater than 200 Degrees F (TCC)

EXTINGUISHING MEDIA: This product would not be expected to burn unless all the water is boiled away. The remaining organics may be ignitable. Use water to cool containers exposed to fire.

UNUSUAL FIRE AND EXPLOSION HAZARD: May evolve NOx under fire conditions.

SECTION 9 REACTIVITY INFORMATION

INCOMPATIBILITY: Avoid contact with strong oxidizers (eg. chlorine, peroxides, chromates, nitric acid, perchlorates, concentrated oxygen, permanganates) which can generate heat, fires, explosions and the release of toxic fumes.

THERMAL DECOMPOSITION PRODUCTS: In the event of combustion CO, CO2, NOx may be formed. Do not breathe smoke or fumes. Wear suitable protective equipment.



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SECTION 10 PERSONAL PROTECTION EQUIPMENT

RESPIRATORY PROTECTION: If it is possible to generate significant levels of vapors or mists, a NIOSH approved or equivalent respirator is recommended.

VENTILATION: General ventilation is recommended. Additionally, local exhaust ventilation is recommended where vapors, mists or aerosols may be released.

PROTECTIVE EQUIPMENT: Wear gloves, boots, apron and a face shield with chemical splash goggles. A full slicker suit is recommended if gross exposure is possible.

The availability of an eye wash fountain and safety shower is recommended.

SECTION 11 SPILL AND DISPOSAL INFORMATION

IN CASE OF TRANSPORTATION ACCIDENTS, CALL THE FOLLOWING 24-HOUR TELEPHONE NUMBER (708-920-1510)

SPILL CONTROL AND RECOVERY:

Small liquid spills: Contain with absorbent material, such as clay, soil or any commercially available absorbent.

DISPOSAL: If this product becomes a waste, it meets the criteria of a hazardous waste as defined under the Resources Conservation and Recovery Act (RCRA) 40 CFR 261. Hazardous Waste D004.

Product contains an arsenic compound at a level greater than 5 ppm as As.

As a hazardous liquid waste, it must be solidified with stabilizing agents (such as sand, fly ash, or cement) so that no free liquid remains before disposal to a licensed industrial waste landfill (Hazardous Waste Treatment, Storage and Disposal facility). Combine with other arsenic-containing plant wastes.

Empty product containers if plastic, should be punctured and placed in the garbage collection container.

SECTION 12 ENVIRONMENTAL INFORMATION

AQUATIC DATA: Dimethylformamide.

96 hour static acute LC50 to Rainbow Trout = 9,860 ppm

TOXICITY RATING: Essentially non-toxic



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SECTION 12 ENVIRONMENTAL INFORMATION

(CONTINUED)

If released into the environment, see CERCLA in Section 14.

SECTION 13 TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME/HAZARD CODE - PRODUCT IS NOT REGULATED
DURING TRANSPORTATION

SECTION 14 REGULATORY INFORMATION

The following regulations apply to this product.

FEDERAL REGULATIONS:

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200:

Based on our hazard evaluation, the following ingredient in this product is hazardous and the reason is shown below.

Dimethylformamide - Eye/skin irritant, systemic effects (See Section 5 and 6)

Dimethylformamide = TWA 10 ppm, 30 mg/m³ (skin) ACGIH/TLV

Arsenic (soluble compounds, as As) = TWA 0.2 mg/m³ ACGIH/TLV

Dimethylformamide = TWA 10 ppm, 30 mg/m³ (skin) OSHA/PEL

Arsenic (organic compounds, as As) = TWA 0.2 mg/m³ OSHA/PEL

CERCLA/SUPERFUND, 40 CFR 117, 302:

Notification of spills of this product is not required.

SARA/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986

(TITLE III) - SECTIONS 302, 311, 312 AND 313:

SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355):

This product does not contain ingredients listed in Appendix A and B as an Extremely Hazardous Substance.

SECTIONS 311 and 312 - MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR 370):

Our hazard evaluation has found this product to be hazardous. The product should be reported under the following EPA hazard categories:

XX Immediate (acute) health hazard

XX Delayed (chronic) health hazard

-- Fire hazard

-- Sudden release of pressure hazard



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SECTION 14 REGULATORY INFORMATION

(CONTINUED)

-- Reactive hazard

SECTION 313 - LIST OF TOXIC CHEMICALS (40 CFR 372):

This product contains the following ingredient(s), (with CAS # and % range) which appear(s) on the List of Toxic Chemicals.

Phenylarsine oxide 637-03-6 1-10

TOXIC SUBSTANCES CONTROL ACT (TSCA):

The chemical ingredients in this product are on the 8(b) Inventory List (40 CFR 710).

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA), 40 CFR 261 SUBPART C & D:
Consult Section 11 for RCRA classification.

FEDERAL WATER POLLUTION CONTROL ACT, CLEAN WATER ACT, 40 CFR 401.15/
formerly Sec. 307, 40 CFR 116/formerly Sec. 311:

This product contains the following ingredient covered by the Clean Water Act:

Arsenic compounds (phenylarsine oxide) - Section 307

CLEAN AIR ACT, 40 CFR 60, SECTION 111, 40 CFR 61, SECTION 112:

This product contains the following ingredient covered by the Clean Air Act:

Dimethylformamide - Section 111

STATE REGULATIONS:

CALIFORNIA PROPOSITION 65:

None of the chemicals on the current Proposition 65 list are known to be present in this product.

MICHIGAN CRITICAL MATERIALS:

This product contains the following substance(s) identified on the Michigan Critical Materials Register:

Arsenic compounds - phenylarsine oxide

STATE RIGHT TO KNOW LAWS:

Regulated in those states using the TLV for dimethylformamide, phenylarsine oxide as a criteria for listing.



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SECTION 15 ADDITIONAL INFORMATION

None

SECTION 16 USER'S RESPONSIBILITY

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information. For any other uses, exposures should be evaluated so that appropriate handling practices and training programs can be established to ensure safe workplace operations. Please consult your local sales representative for any further information.

SECTION 17 BIBLIOGRAPHY

ANNUAL REPORT ON CARCINOGENS, U.S. Department of Health and Human Services, Public Health Service, PB 33-135855, 1983.

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Title 29 Code of Federal Regulations Part 1910, Subpart Z, Toxic and Hazardous Substances, Occupational Safety and Health Administration (OSHA).

THRESHOLD LIMIT VALUES FOR CHEMICAL SUBSTANCES AND PHYSICAL AGENTS IN THE



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SECTION 17 BIBLIOGRAPHY

(CONTINUED)

WORKROOM ENVIRONMENT WITH INTENDED CHANGES, American Conference of
Governmental Industrial Hygienists, OH.

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